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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,039	11/21/2001	Ahmad Jalali	PA010519	3607

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Patents Department
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EXAMINER	
SHEW, JOHN	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/991,039	JALALI ET AL.	
	Examiner	Art Unit	
	John L Shew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/21/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13-18* is/are allowed.

6)☒ Claim(s) *1,2,4,8,10-12,19-21,24,26,27,31,34 and 36* is/are rejected.

7)☒ Claim(s) *3,5-7,9,22,23,25,28-30,32,33 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03012002,06302003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 21 line 19 cites "No. 09/826,481" is an incorrect application number as the subject matter disclosed is a single bifocal custom shooters glasses (Patent number 6478422).

Page 21 line 20 cites "No. 09/776,075" is an incorrect application number as the subject matter disclosed is a process for hard panning of chewable cores and cores produced by the process (Pub No. 2001/0018084).

Page 21 line 22 cites "Application Serial No. [Attorney Docket No. 010254]", should replace "[Attorney Docket No. 010254]" with associated application number.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 8, 10, 11, 12, 26, 27, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj et al. (Patent number 6351499) in view of van Nee (Patent number 6175550).

Claim 1, Paulraj teaches a method for determining data capacity for a data transmission over a communication channel in a wireless communication system (FIG. 1, column 3 lines 43-52, column 5 lines 45-58) referenced by the maximizing of data capacity from wireless a transmit unit of a BTS 12 to a stationary receive unit 14D, comprising identifying a set of parameters for the data transmission (Abstract lines 11-21) referenced by data transmission parameters SINR, SNR, power level, BER, packet error rate, estimating one or more characteristics of the communication channel (FIG. 4, column 7 lines 41-49, column 9 lines 32-51) referenced by the estimator 84 of the channel coefficients which depend on the channel communication parameter, deriving a metric for an equivalent channel based on the set of parameters and the one or more estimated channel characteristics (FIG. 4, column 9 lines 52-67, FIG. 6, column 12 lines 11-24) referenced by signal statistics unit 90 assessing the quality parameter including metric SNR and the use of training unit 70 to establish equivalent channel

characteristics, determining a threshold signal quality required for the equivalent channel to support a particular data rate (Abstract lines 11-17) referenced by the level crossing duration of a predetermined threshold or a parameter of the data which includes SNR, and indicating whether or not the particular data rate is supported by the communication channel based on the metric and the threshold signal quality (FIG. 8, column 7 lines 57-67, column 8 lines 1-22) referenced by the optimization of data throughput and determination of the S-T code based on meeting target SINR threshold of value p. Paulraj does not teach data rate.

Van Nee teaches data rate (column 3 lines 13-28) referenced by the OFDM system transmission rate scaled based on operating parameters.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the data rate of van Nee to the data capacity of Paulraj for the purpose of maximizing a communication parameter in a wireless network.

Claim 2, Paulraj teaches wherein the set of parameters includes a particular coding scheme and a particular modulation scheme to be used for the data transmission (column 3 lines 58-67) referenced by the quality parameter utilized by the coding unit can use different coding and modulation rates.

Claim 8, Paulraj teaches wherein the signal quality is quantified by a signal-to-noise-and-interference ratio (SNR) (FIG. 4, column 9 lines 52-67, column 10 lines 1-7)

referenced by signal statistics unit 90 assessing the quality parameter including metric signal-to-noise ration (SNR) and signal-to-interference noise ration (SINR).

Claim 10, Paulraj teaches wherein a single modulation scheme is used for all frequency subchannels used for the data transmission (column 7 lines 20-29) referenced by the use of the same modulation format for all transmit antennas.

Claim 11, Paulraj teaches wherein a plurality of modulation schemes are used for a plurality of frequency subchannels used for the data transmission (column 7 lines 20-32) referenced by the use of different modulation format for the transmit antennas.

Claim 12, Paulraj teaches the wireless communication system is an orthogonal frequency division multiplex (OFDM) system (FIG. 6, FIG 7, column 12 lines 11-25) referenced by the OFDM transmit unit 50 and OFDM receive unit 80.

Claim 26, Paulraj teaches a receiver unit (FIG. 7) referenced by the OFDM receive unit, in a wireless communication system (FIG. 1) referenced by the wireless BTS transmit unit 12 to Subscriber receive unit 14D, comprising a channel estimator operative to derive estimates of one or more characteristics of a communication channel used for a data transmission (FIG. 7, column 9 lines 33-67, column 12 lines 25-36) referenced by the space-frequency matrix channel estimator 130 which assess the quality parameter of the channel including SINR, SNR, power level and LCR, and rate selector operative

to receive channel estimates from the channel estimator and a set of parameters indicative of a particular rate for the data transmission (FIG. 4, FIG. 5A, , column 11 lines 30-44) referenced by S-T Code Lookup block 100 60 deciding an optimum k to maximize channel capacity where the input data are signal statistics streams 90 94 from the results of the Multi-Channel Estimator 84, derive a metric for an equivalent channel (FIG. 4, column 9 lines 52-67, FIG. 6, column 12 lines 11-24) referenced by signal statistics unit 90 assessing the quality parameter including metric SNR and the use of training unit 70 to establish equivalent channel characteristics, determine a threshold signal quality required for the equivalent channel to support the particular rate (Abstract lines 11-17) referenced by the level crossing duration of a predetermined threshold or a parameter of the data which includes SNR, and indicate whether or not the particular rate is supported by the communication channel based on the metric and the threshold signal quality (FIG. 8, column 7 lines 57-67, column 8 lines 1-22) referenced by the optimization of data throughput and determination of the S-T code based on meeting target SINR threshold of value p.

Claim 27, Paulraj teaches a decoder operative to provide a status of each received transmission for a particular packet of data (FIG. 4, column 9 lines 52-67) referenced by S-T Decoders unit 88 with S-T decoders 89 operative on respective packet streams, and a controller operative to provide feedback information comprised of the particular rate and an indication of the packet status (FIG. 5A, column 10 lines 66-67, column 11

lines 1-14) referenced by S-T Code Lookup block 100 providing signal statistics Feedback 64.

Claim 31, Paulraj teaches a receiver apparatus (FIG. 7) referenced by the OFDM receive unit, in a wireless communication system (FIG. 1) referenced by the wireless BTS transmit unit 12 to Subscriber receive unit 14D, comprising means for deriving estimates of one or more characteristics of a communication channel used for a data transmission (FIG. 7, column 9 lines 33-67, column 12 lines 25-36) referenced by the space-frequency matrix channel estimator 130 which assess the quality parameter of the channel including SINR, SNR, power level and LCR, means for deriving a metric for an equivalent channel based on the channel estimates and a set of parameters indicative of a particular rate for the data transmission (FIG. 4, column 9 lines 52-67, FIG. 6, column 12 lines 11-24) referenced by signal statistics unit 90 assessing the quality parameter including metric SNR based on the outputs of Multi-Channel Estimator and the use of training unit 70 to establish equivalent channel characteristics, means for determining a threshold signal quality required for the equivalent channel to support the particular rate (Abstract lines 11-17) referenced by the level crossing duration of a predetermined threshold or a parameter of the data which includes SNR, and means for indicating whether or not the particular rate is supported by the communication channel based on the metric and the threshold signal quality (FIG. 8, column 7 lines 57-67, column 8 lines 1-22) referenced by the optimization of data

throughput and determination of the S-T code based on meeting target SINR threshold of value p.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj and van Nee as applied to claims 1-2 above, and further in view of Cimini et al. (Patent number 5914933).

Claim 4, Paulraj and van Nee teach a method of maximizing data rate in a wireless network with the equivalent channel determined through the use of a training unit. They do not teach the equivalent channel has a flat frequency response.
Cimini teaches the equivalent channel has a flat frequency response across a system bandwidth (column 4 lines 41-50, column 8 lines 47-53) referenced by the pilot tones to measure frequency response which is flat for narrow individual sub-channels.
It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the pilot tones of Cimini to the training unit of Paulraj and van Nee for the purpose of distributing the signal over a plurality of clusters to reduce peak-to-average power.

4. Claims 19, 20, 21, 24, 34, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj et al. (Patent number 6351499) in view of Laroia (Patent number 6816478).

Claim 19, Paulraj teaches a method for transmitting data over a communication channel in an orthogonal frequency division multiplex (OFDM) system (FIG. 1, Abstract lines 1-7) referenced by the maximizing of data capacity over a wireless OFDM system, comprising identifying an initial rate to be used for a data transmission over the communication channel (column 3 lines 43-52) referenced by the maximization of data capacity which establishes an initial data rate of transmission, processing data for transmission over the communication channel based on the initial rate (column 3 lines 59-67) referenced by the processing of multiplexed streams by a coding unit to utilize the quality parameter of data capacity. Paulraj does not teach transmitting a first portion of data and additional portions upon receiving indication of incorrect reception. Laroia teaches transmitting a first portion of the processed data (FIG. 5, column 5 lines 64-67, column 6 lines 1-19) referenced by transmit of a packet from the transmit buffer, receiving an indication of incorrect reception of the data transmission (FIG. 5) referenced by the negative acknowledgment, transmitting an additional portion of the processed data (FIG. 5) referenced by putting the traffic packet back to the transmit buffer Step 504 followed by transmission of the packet from the transmit buffer Step 501.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of repeat requests of Laroia to the method of determining data capacity of Paulraj for the purpose of improving the wireless channel reliability.

Claim 20, Paulraj teaches wherein the initial rate is determined based on an estimated signal-to-noise-and-interference ratio (SNR) for an equivalent channel (FIG. 4, column 9 lines 33-67, FIG. 6, column 12 lines 11-24) referenced by signal statistics unit 90 assessing the quality parameter including metric SNR and the use of training unit 70 to establish equivalent channel characteristics.

Claim 21, Paulraj teaches wherein the initial rate is indicative of a particular data rate a particular modulation scheme and a particular coding scheme to be used for the data transmission (column 3 lines 43-67) referenced by the maximization of communication parameter data capacity utilizes quality parameter such that the space-time and space-frequency coders use different coding and modulation rates.

Claim 24, Paulraj teach a method of maximizing data rate in a wireless network. Paulraj does not teach repeating transmission one or more times until an indication of correct reception is received.
Laroia teaches repeating the transmission of an additional portion one or more times until an indication of correct reception of the data transmission is received (FIG. 5,

column 5 lines 64-67, column 6 lines 1-19) referenced by the iteration of steps 501-504 for retransmission of a traffic packet if the acknowledgment is negative.
It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of repeat requests of Laroia to the method of determining data capacity of Paulraj for the purpose of improving the wireless channel reliability.

Claim 34, Paulraj teaches a transmitter unit in an orthogonal frequency division multiplex (OFDM) system (FIG. 6, column 12 lines 11-24) referenced by the OFDM transmit unit, comprising a controller operative to identify an initial rate to be used for a data transmission over a communication channel (FIG. 6, column 3 lines 43-52, column 11 lines 30-44, column 12 lines 11-24) referenced by the Adaptive Controller 60 which performs maximization of data capacity which establishes an initial data rate of transmission, wherein the initial rate is indicative of a particular data rate a particular modulation scheme and a particular coding scheme to be used for the data transmission (column 3 lines 43-67) referenced by the maximization of communication parameter data capacity utilizes quality parameter such that the space-time and space-frequency coders use different coding and modulation rates, a transmitter operative to transmit the modulated data (FIG. 6) referenced by the UP-CONV. RF AMP for transmission through anttenna TA. Paulraj does not teach receiving indication of correct or incorrect reception.

Laroia teaches receiving an indication of correct or incorrect reception of the data transmission (FIG. 5, column 5 lines 64-67, column 6 lines 1-19) referenced by the determination of the Acknowledgment to be Yes or No Step 503, a modulator operative to modulate a first portion of the coded data in accordance with the particular modulation scheme (FIG. 1, FIG. 2) referenced by the transmission of Traffic Segment 1 through Transmitter 105, and to further modulate an additional portion of the coded data if the indication of incorrect reception of the data transmission is received (FIG. 5) referenced by putting the traffic packet back to the transmit buffer Step 504 followed by transmission of the packet from the transmit buffer Step 501.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of repeat requests of Laroia to the method of determining data capacity of Paulraj for the purpose of improving the wireless channel reliability.

Claim 36, Paulraj teaches a transmitter apparatus (FIG. 6) referenced by the OFDM transmit unit, in a wireless communication system (FIG. 1) referenced by the wireless BTS transmit unit 12 to Subscriber receive unit 14D, comprising means for identifying an initial rate to be used for data transmission over a communication channel (FIG. 6, column 3 lines 43-52, column 11 lines 30-44, column 12 lines 11-24) referenced by the Adaptive Controller 60 which performs maximization of data capacity which establishes an initial data rate of transmission, wherein the initial rate is indicative of a particular data rate a particular modulation scheme and a particular coding scheme to be used for

the data transmission (column 3 lines 43-67) referenced by the maximization of communication parameter data capacity utilizes quality parameter such that the space-time and space-frequency coders use different coding and modulation rates, means for coding data in accordance with the particular coding scheme (FIG. 3, column 7 lines 12-19) referenced by the S-T Coders 65 coding with respect to different coding schemes, means for modulating a first portion of the coded data in accordance with the particular modulation scheme (FIG. 3, column 8 lines 47-67) referenced by the Transmit Processing G(z) unit 72 with the appropriate matrix set G(z) for modulation, and means for transmitting the modulated data (FIG. 6) referenced by the UP-CONV. RF AMP for transmission through anttenna TA. Paulraj does not teach receiving indication of correct or incorrect reception.

Laroia teaches means for receiving an indication of correct or incorrect reception of the data transmission at a receiver (FIG. 5, column 5 lines 64-67, column 6 lines 1-19) referenced by the determination of the Acknowledgment to be Yes or No Step 503, means for modulating an additional portion of the coded data if the indication of incorrect reception of the data transmission is received (FIG. 5) referenced by putting the traffic packet back to the transmit buffer Step 504 followed by transmission of the packet from the transmit buffer Step 501.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of repeat requests of Laroia to the method of determining data capacity of Paulraj for the purpose of improving the wireless channel reliability.

Allowable Subject Matter

5. Claims 13-18 are allowed.

Claims 3, 5-7, 9, 22-23, 25, 28-30, 32-33, 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Shew whose telephone number is 571-272-3137. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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